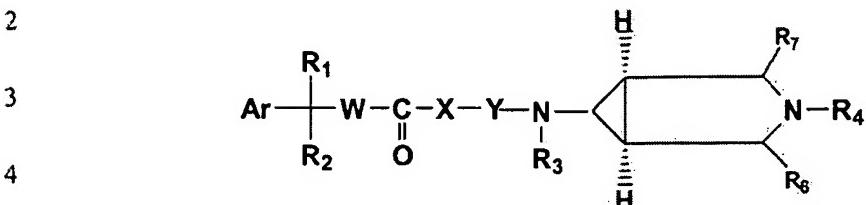


1 1. (Currently Amended) Compounds having the structure of Formula I:



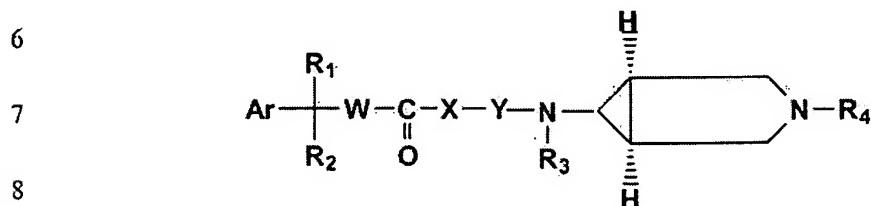
Formula I

and their pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, or N-oxides, polymorphs, prodrugs, or metabolites, wherein Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), lower perhaloalkyl (C₁-C₄), cyano, hydroxy, nitro, halogen (e.g. F, Cl, Br, I), lower alkoxy (C₁-C₄), lower perhalo- alkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄); R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy , carbamoyl or halogen (e.g. fluorine, chlorine, bromine and iodine); R₂ represents alkyl, C₃-C₇ cycloalkyl ring in which any 1-4 hydrogen atoms are substituted with halogen (e.g. F, Cl, Br, I), carbamoyl or lower alkyl; W represents (CH₂)_p, where p represents 0 to 1; X represents an oxygen, sulphur, NR or no atom wherein R represents hydrogen or C₁-C₆ alkyl; Y represents CHR₅CO wherein R₅ represents hydrogen, methyl or (CH₂)_q wherein q represents 0 to 4; R₃ represents hydrogen, lower alkyl or CO₂C(CH₃)₃; R₆ and R₇ are independently selected from H, lower alkyl, COOH, CONH₂, NH₂, CH₂NH₂; and

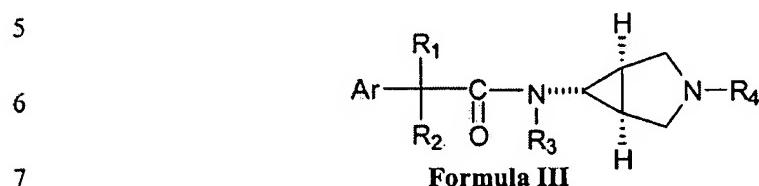
26 R₄ represents C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon (straight chain or
27 branched) in which any 1 to 6 hydrogen atoms may be substituted with the group
28 independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or
29 heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of
30 nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on an
31 aryl or heteroaryl ring in said arylalkyl, arylalkenyl, heteroarylalkenyl group may be
32 substituted with lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro,
33 lower alkoxy carbonyl, halogen, lower alkoxy (C₁-C₄), lower perhaloalkoxy (C₁-C₄),
34 unsubstituted amino, N-lower alkylamino (C₁-C₄), or N-lower alkylamino carbonyl (C₁-
35 C₄).

1 2. (Currently Amended) A compound according to claim 1 having the structure of
2 Formula II and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates,
3 esters, enantiomers, diastereomers, or N-oxides, polymorphs, prodrugs, metabolites,
4 wherein

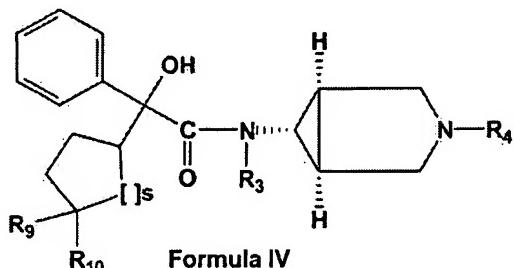
5 Ar, R₁, R₂, W, X, Y, R₃ and R₄ are as defined for formula I.



1 3. (Currently Amended) A compound according to claim 1 having the structure of
2 Formula III and its pharmaceutically acceptable salts, pharmaceutically acceptable
3 solvates, esters, enantiomers, diastereomers, or N-oxides, polymorphs, prodrugs,
4 metabolites, wherein Ar, R₁, R₂, R₃ and R₄ are as defined for Formula I.



1 4. (Currently Amended) A compound according to claim 1 having the structure of
2 Formula IV and its pharmaceutically acceptable salts, esters, enantiomers, diastereomers,
3 or N-oxides, prodrugs, or metabolites wherein R₃ and R₄ are as defined for Formula I, and
4 s represents 1 to 2, R₉ is H or F and R₁₀ is F.



5

17 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(2-(3, 4-methylenedioxyphenyl)ethyl]-3-
18 azabicyclo[3.1.0]-hexyl]-2-[(1R or 1S)-3, 3-difluorocyclopentyl]-2-hydroxy-2-
19 phenylacetamide;

20 (2R)-(1 α , 5 α , 6 α)-6-N-[3-(2-(3,4-methylenedioxyphenyl)ethyl]-3-
21 azabicyclo[3.1.0]-hexyl]-2-[(1R or 1S)-3, 3-difluorocyclopentyl]-2-hydroxy-2-
22 phenylacetamide;

23 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(2-(3, 4-methylenedioxyphenyl)ethyl]-3-
24 azabicyclo[3.1.0]-hexyl]-2-[(1R or 1S, 3R or 3S)-3-fluorocyclohexyl]-2-hydroxy-
25 2-phenylacetamide;

26 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(2-(3, 4-methylenedioxyphenyl)ethyl]-3-
27 azabicyclo[3.1.0]-hexyl]-2-[(1R or 1S, 3R or 3S)-3-fluorocyclopentyl]-2-hydroxy-
28 2-phenylacetamide;

29 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(4-methyl-3-pentenyl)-3-azabicyclo[3.1.0]-hexyl]-2-[(1R
30 or 1S)-3, 3-difluorocyclohexyl]-2-hydroxy-2-phenylacetamide;

31 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(4-methyl-3-pentenyl)-3-azabicyclo[3.1.0]-hexyl]-2-[(1R
32 or 1S)-3, 3-difluorocyclopentyl]-2-hydroxy-2-phenylacetamide;

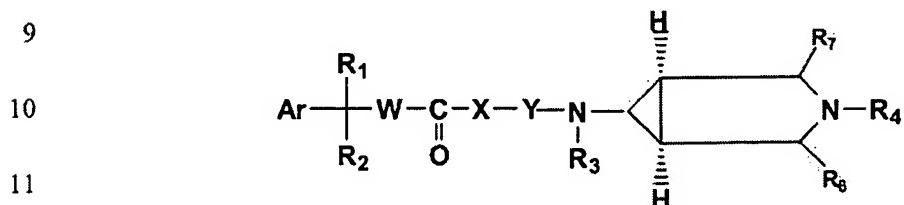
33 (2R)-(1 α , 5 α , 6 α)-6-N-[3-(4-methyl-3-pentenyl)-3-azabicyclo[3.1.0]-hexyl]-2-
34 [(1R or 1S)-3, 3-difluorocyclopentyl]-2-hydroxy-2-phenylacetamide;

35 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(4-methyl-3-pentenyl)-3-azabicyclo[3.1.0]-hexyl]-2-[(1R
36 or 1S, 3R or 3S)-3-fluorocyclohexyl]-2-hydroxy-2-phenylacetamide; and

37 (2S)-(1 α , 5 α , 6 α)-6-N-[3-(4-methyl-3-pentenyl)-3-azabicyclo[3.1.0]-hexyl]-2-[(1R
38 or 1S, 3R or 3S)-3-fluorocyclopentyl]-2-hydroxy-2-phenylacetamide.

1 6. (Currently Amended) A pharmaceutical composition comprising a therapeutically
2 effective amount of a compound as defined in any one of claims 1-5 together with
3 pharmaceutically acceptable carriers, excipients or diluents.

1 7. (Currently Amended) A method for treatment or prophylaxis of an animal or a
2 human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal
3 systems, wherein the disease or disorder is mediated through muscarinic receptors urinary
4 incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive
5 pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity,
6 diabetes and gastrointestinal hyperkinesis, comprising administering to said animal or
7 human, a therapeutically effective amount of a compound having the structure of Formula
8 I,



12 **Formula I**

13 and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters,
14 enantiomers, diastereomers, or N-oxides, polymorphs, prodrugs, metabolites, wherein
15 Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group
16 consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be
17 unsubstituted or substituted by one to three substituents independently selected from lower
18 alkyl (C₁-C₄), lower perhaloalkyl (C₁-C₄), cyano, hydroxy, nitro, halogen (e.g. F, Cl, Br,
19 I), lower alkoxy (C₁-C₄), lower perhalo- alkoxy (C₁-C₄), unsubstituted amino, N-lower
20 alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄);

21 R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy , carbamoyl or halogen
22 (e.g. fluorine, chlorine, bromine and iodine);

23 R₂ represents alkyl, C₃-C₇ cycloalkyl ring in which any 1-4 hydrogen atoms are
24 substituted with halogen (e.g. F, Cl, Br, I), carbamoyl or lower alkyl;

25 W represents (CH₂)_p, where p represents 0 to 1;

26 X represents an oxygen, sulphur, NR or no atom wherein R represents
27 hydrogen or C₁-C₆ alkyl;

28 Y represents CHR_5CO wherein R_5 represents hydrogen, methyl or $(\text{CH}_2)_q$
29 wherein q represents 0 to 4;

30 R_3 represents hydrogen, lower alkyl or $\text{CO}_2\text{C}(\text{CH}_3)_3$;

31 R_6 and R_7 are independently selected from H, lower alkyl, COOH, CONH₂, NH₂,
32 CH_2NH_2 ; and

33 R_4 represents C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon (straight chain or
34 branched) in which any 1 to 6 hydrogen atoms may be substituted with the group
35 independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or
36 heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of
37 nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on an
38 aryl or heteroaryl ring in said arylalkyl, arylalkenyl, heteroarylalkenyl group may be
39 substituted with lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro,
40 lower alkoxycarbonyl, halogen, lower alkoxy (C₁-C₄), lower perhaloalkoxy (C₁-C₄),
41 unsubstituted amino, N-lower alkylamino (C₁-C₄), N-lower alkylamino carbonyl (C₁-C₄).

1 8. (Currently Amended) The method according to claim 7 for treatment or
2 prophylaxis of an animal or a human suffering from a disease or disorder of the
3 respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is
4 mediated through muscarinic receptors urinary incontinence, lower urinary tract symptoms
5 (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary
6 fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis,
7 comprising administering to said animal or human, a therapeutically effective amount of a
8 compound having the structure of Formula II and its pharmaceutically acceptable salts,
9 pharmaceutically acceptable solvates, esters enantiomers, diastereomers, or N-oxides,
10 polymorphs, prodrugs or metabolites, wherein Ar, R₁, R₂, W, X, Y, R₃ and R₄ are as
11 defined for Formula I.

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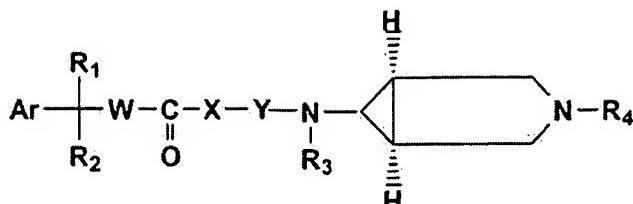
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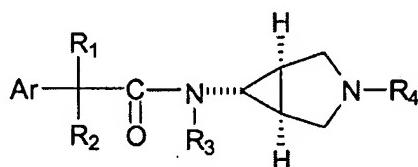
Formula II

1 9. (Currently Amended) The method according to claim 7 for treatment or
2 prophylaxis of an animal or a human suffering from a disease or disorder of the
3 respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is
4 mediated through muscarinic receptors urinary incontinence, lower urinary tract symptoms
5 (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary
6 fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis,
7 comprising administering to said animal or human, a therapeutically effective amount of a
8 compound having the structure of Formula III and its pharmaceutically acceptable salts,
9 pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, or N-oxides,
10 polymorphs, prodrugs or metabolites, wherein Ar, R₁, R₂, R₃ and R₄ are as defined for
11 Formula I.

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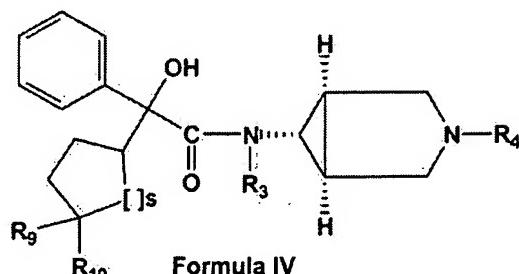
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Formula - III

1 10. (Currently Amended) The method according to claim 7 for treatment or
2 prophylaxis of an animal or a human suffering from a disease or disorder of the
3 respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is
4 mediated through muscarinic receptors urinary incontinence, lower urinary tract symptoms
5 (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary
6 fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis,
7 comprising administering to said animal or human, a therapeutically effective amount of a
8 compound having the structure of Formula-IV and its pharmaceutically acceptable salts,
9 pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, or N-oxides,

10 polymorphs, prodrugs or metabolites, wherein R₃ and R₄ are as defined for Formula I, s
11 represents 1 to 2, R₉=H or F, and R₁₀=F.



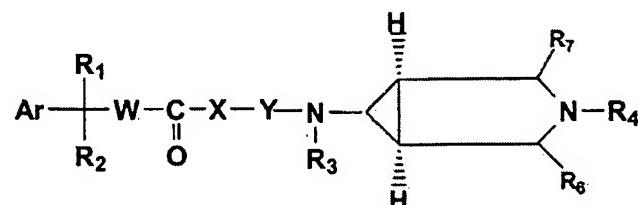
12 Formula IV

1 11.- 14. (Cancelled)

1 15. (Currently Amended) The method for treatment or prophylaxis of an animal or a
2 human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal
3 systems, wherein the disease or disorder is mediated through muscarinic receptors,
4 comprising administering to said animal or human, a therapeutically effective amount of
5 the pharmaceutical composition according to claim 6.

1 16. (Original) The method according to claim 15 wherein the disease or disorder is
2 urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic
3 obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome,
4 obesity, diabetes and gastrointestinal hyperkinesia.

1 17. (Currently Amended) A process of preparing compounds of Formula I,



5 Formula I

6 and their pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters,
7 enantiomers, diastereomers, or N-oxides, polymorphs, prodrugs or metabolites, wherein

8 Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group
9 consisting of oxygen, sulphur and nitrogen atoms, the aryl or heteroaryl rings may be
10 unsubstituted or substituted by one to three substituents independently selected from lower
11 alkyl (C₁-C₄), lower perhaloalkyl (C₁-C₄), cyano, hydroxy, nitro, halogen (e.g. F, Cl, Br,
12 I), lower alkoxy (C₁-C₄), lower perhalo- alkoxy (C₁-C₄), unsubstituted amino, N-lower
13 alkylamino (C₁-C₄) or N-lower alkylamino carbonyl (C₁-C₄);

14 R₁ represents a hydrogen, hydroxy, hydroxymethyl, amino, alkoxy , carbamoyl or
15 halogen (e.g. fluorine, chlorine, bromine and iodine);

16 R₂ represents alkyl, C₃-C₇ cycloalkyl ring in which any 1-4 hydrogen atoms are
17 substituted with halogen (e.g. F, Cl, Br, I), carbamoyl or lower alkyl;

18 W represents (CH₂)_p, where p represents 0 to 1;

19 X represents an oxygen, sulphur, NR or no atom wherein R represents
20 hydrogen or C₁-C₆ alkyl;

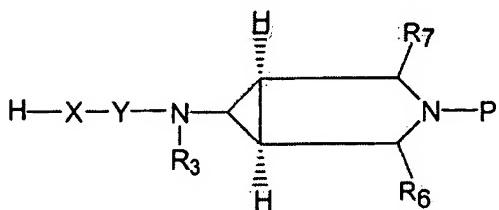
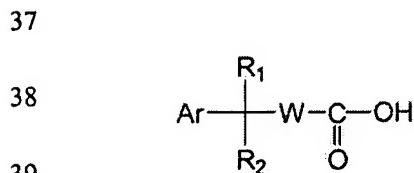
21 Y represents CHR₅CO wherein R₅ represents hydrogen, methyl or (CH₂)_q
22 wherein q represents 0 to 4;

23 R₃ represents hydrogen, lower alkyl or CO₂C(CH₃)₃;

24 R₆ and R₇ are independently selected from H, lower alkyl, COOH, CONH₂, NH₂,
25 CH₂NH₂; and

26 R₄ represents C₁-C₁₅ saturated or unsaturated aliphatic hydrocarbon (straight chain or
27 branched) in which any 1 to 6 hydrogen atoms may be substituted with the group
28 independently selected from halogen, arylalkyl, arylalkenyl, heteroarylalkyl or
29 heteroarylalkenyl having 1 to 2 hetero atoms selected from the group consisting of
30 nitrogen, oxygen and sulphur atoms with an option that any 1 to 3 hydrogen atoms on an
31 aryl or heteroaryl ring in said arylalkyl, arylalkenyl, heteroarylalkenyl group may be
32 substituted with lower alkyl (C₁-C₄), lower perhalo alkyl (C₁-C₄), cyano, hydroxy, nitro,
33 lower alkoxy carbonyl, halogen, lower alkoxy (C₁-C₄), lower perhaloalkoxy (C₁-C₄),
34 unsubstituted amino, N-lower alkylamino (C₁-C₄), N-lower alkylamino carbonyl (C₁-C₄),
35 comprising

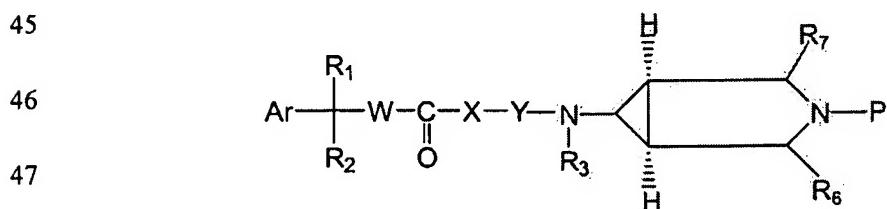
36 (a) condensing a compound of Formula VI with a compound of Formula V



40 **Formula VI**

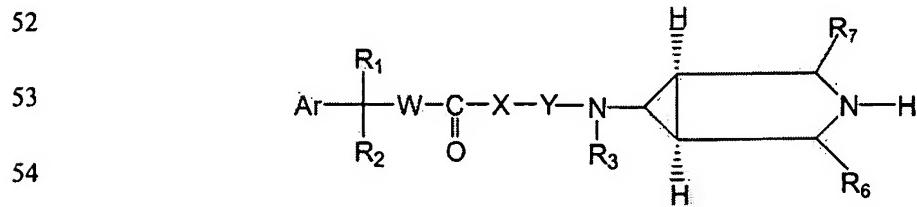
40 **Formula V**

41 wherein Ar, R₁, R₂, W, X, Y, R₃, R₆ and R₇ are as defined earlier for
42 Formula I, to give a protected compound of Formula VII wherein Ar, R₁,
43 R₂, W, X, Y, R₃, R₆ and R₇ are as defined earlier and P is a protecting
44 group for an amino group,



48 **Formula VII**

49 deprotecting the compound of Formula VII in the presence of a
50 deprotecting agent to give an unprotected compound of Formula VIII
51 wherein Ar, R₁, R₂, R₃, W, X, Y, R₃, R₆ and R₇ are as defined earlier, and

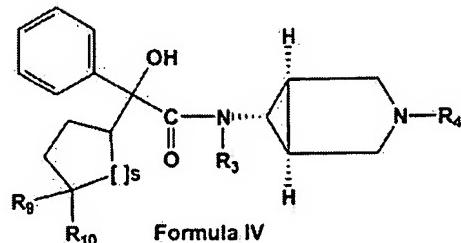


55 **Formula VIII**

56 (b) N-alkylated or benzylated the compound of Formula VIII with a suitable
57 alkylating or benzylating agent to give compounds of Formula I wherein
58 Ar, R₁, R₂, W, X, Y, R₃, R₄, R₆ and R₇ are as defined earlier.

1 18. – 26. (Cancelled).

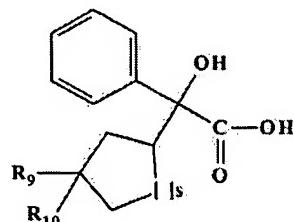
1 27. (Currently Amended) A process of preparing compounds of Formula IV,



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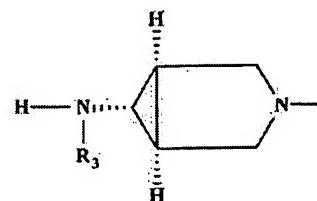
3 and their pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters,
4 enantiomers, diastereomers, or N-oxides, polymorphs, prodrugs, or metabolites, wherein
5 R₃ represents hydrogen, lower alkyl or CO₂(CH₃)₃; R₄ represents C₁-C₁₅ saturated or
6 unsaturated aliphatic hydrocarbon (straight chain or branched) in which any 1 to 6
7 hydrogen atoms may be substituted with the group independently selected from halogen,
8 arylalkyl, arylalkenyl, heteroarylalkyl or heteroarylalkenyl having 1 to 2 hetero atoms
9 selected from the group consisting of nitrogen, oxygen and sulphur atoms with an option
10 that any 1 to 3 hydrogen atoms on an aryl or heteroaryl ring in said arylalkyl, arylalkenyl,
11 heteroarylalkenyl group may be substituted with lower alkyl (C₁-C₄), lower perhalo alkyl
12 (C₁-C₄), cyano, hydroxy, nitro, lower alkoxy carbonyl, halogen, lower alkoxy (C₁-C₄),
13 lower perhalo alkoxy (C₁-C₄), unsubstituted amino, N-lower alkylamino (C₁-C₄), N-lower
14 alkylamino carbonyl (C₁-C₄); s represents 1 to 2, R₉ is H or F and R₁₀ is F, comprising

15 (a) condensing a compound of Formula IX with a compound of Formula X



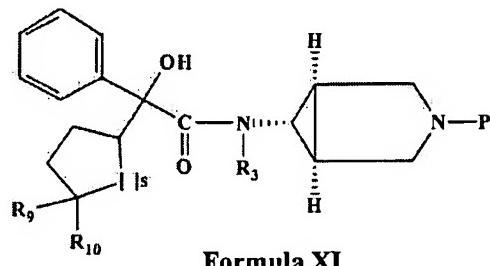
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Formula IX

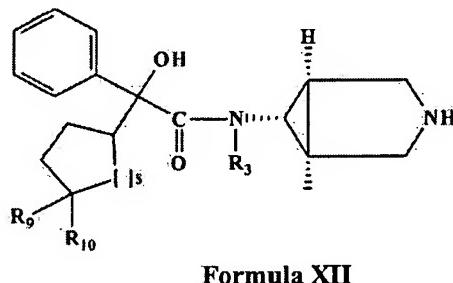


Formula X

20 wherein R₃ and R₄ are as defined earlier for Formula I, s represents 1 to 2, R₉ is H
21 or F and R₁₀ is F, to give a protected compound of Formula XI wherein R₃, R₄, s,
22 R₉ and R₁₀ are as defined earlier and P is a protecting group for an amino group,



27 (b) deprotecting the compound of Formula XI in the presence of a deprotecting
28 agent to give an unprotected compound of Formula XII wherein R₃, R₄, s, R₉
29 and R₁₀ are as defined earlier, and



34 (c) N-alkylated or benzylated the compound of Formula XII with a suitable
35 alkylating or benzylating agent to give compounds of Formula IV wherein R₃, R₄,
36 s, R₉ and R₁₀ are as defined earlier.

1 28. – 36. (Cancelled).